



*Public Works
Stormwater Services*

*101 CITY HALL PLAZA
DURHAM, NC 27701
P 919.560.4326
F 919.560.4210*

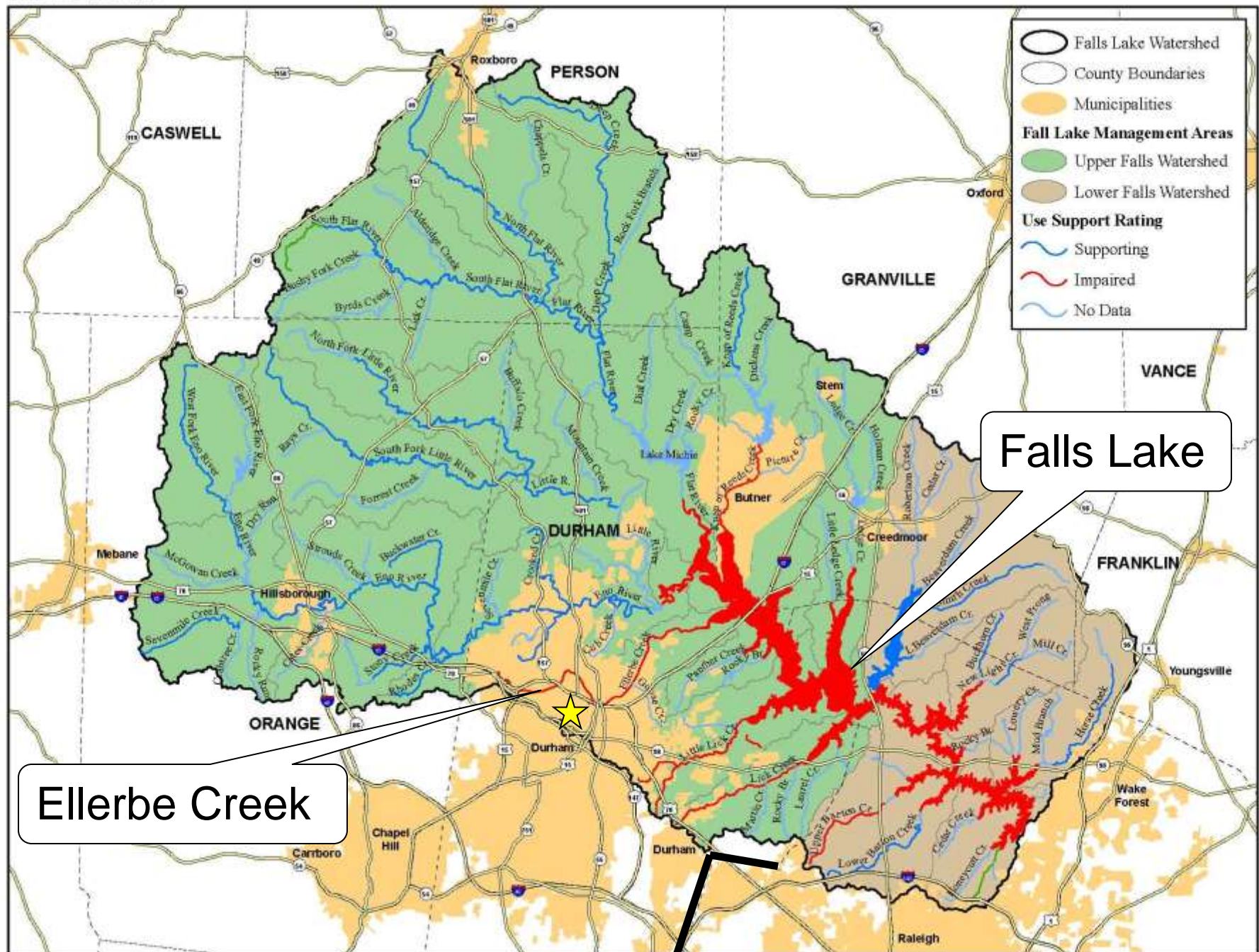
Sandra.Wilbur@durhamnc.gov



The Feasibility of a Stormwater Retrofit At Former Duke Diet and Fitness Center

July 12, 2012

Paul Wiebke, PE and Sandra Wilbur, PE



Falls Lake Rules Highlights

1. Stormwater Rules for New Development
- 2. Stormwater Rules for Existing Development**
3. Wastewater Discharges
4. Agriculture
5. Stream Buffers – Using existing Neuse Rules





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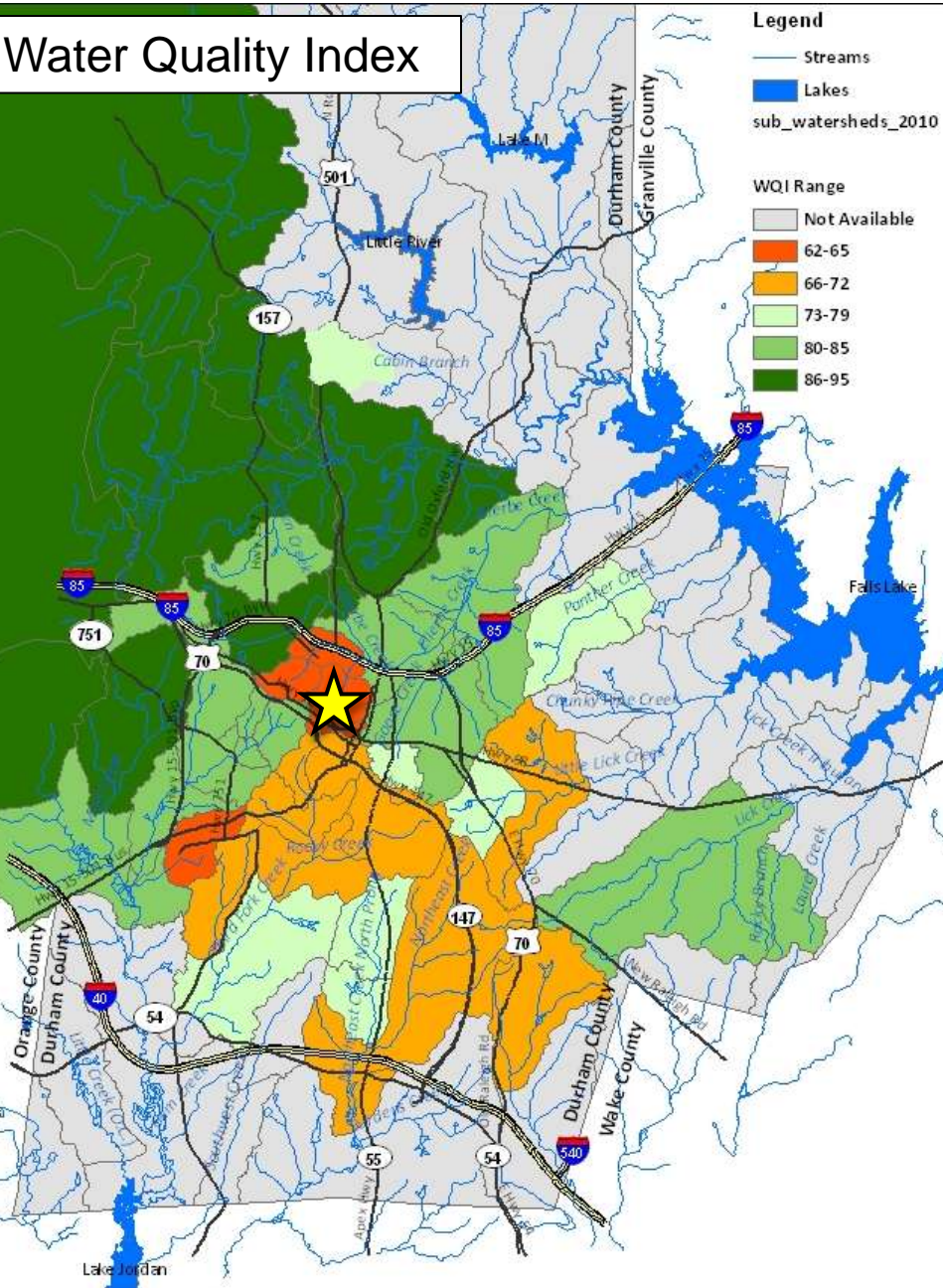
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Falls Lake: What are the costs?

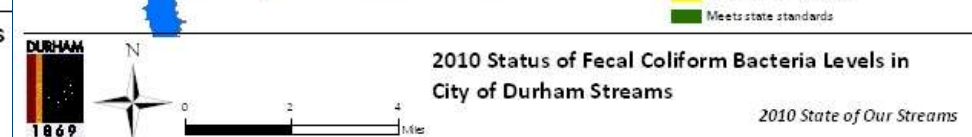
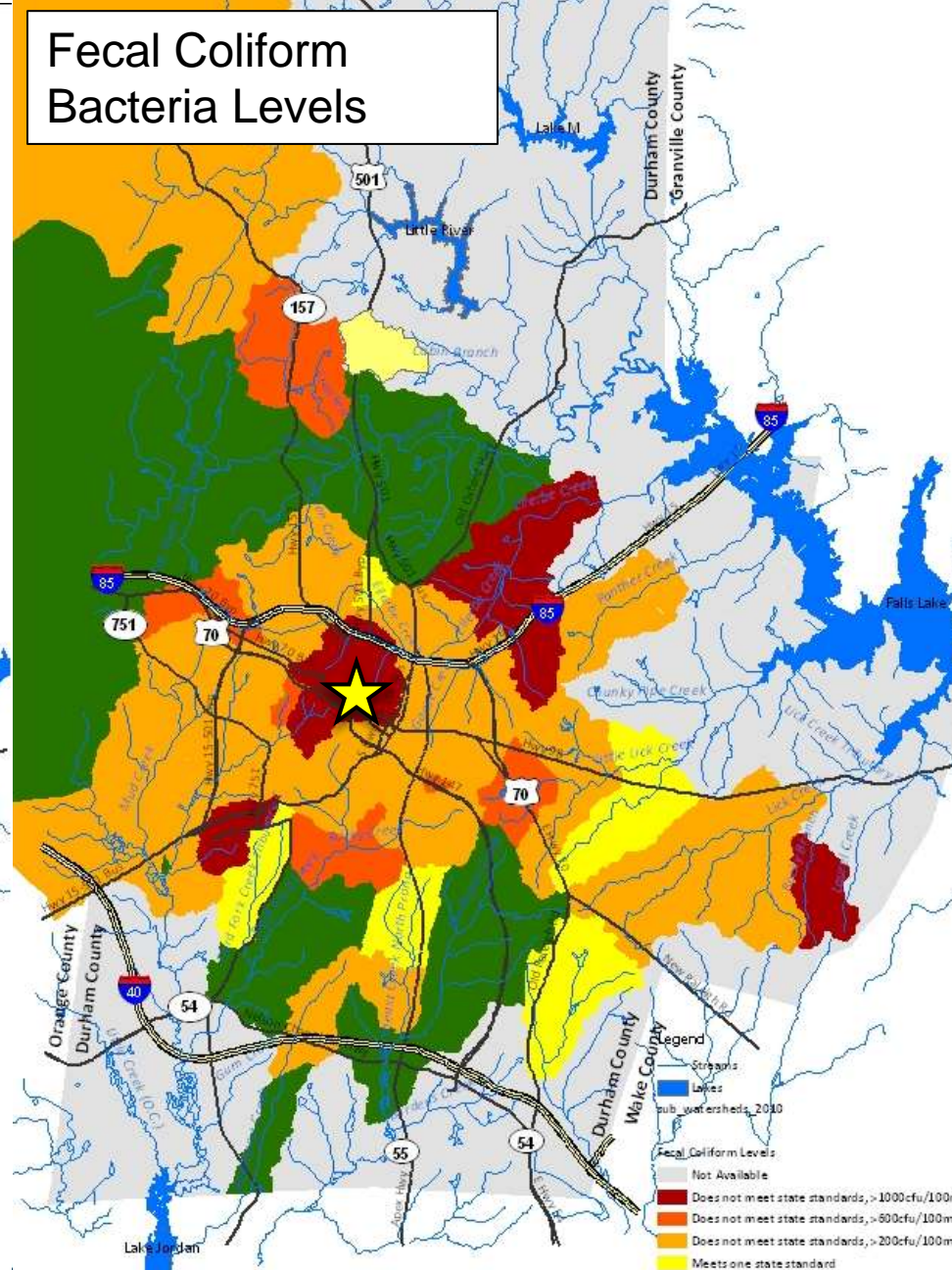
Watershed	Cost (\$ million)	Nitrogen reduction (Goal 40%)	Phosphorus reduction (Goal 77%)
Ellerbe	\$ 320 - \$370	8 - 11%	10 - 15%
Eno	~ \$191	~11 – 12%	~ 21%
Little Lick	~ \$84	~ 10 – 11%	~ 20 – 21%

\$595 to \$645 million dollars!

Water Quality Index



Fecal Coliform Bacteria Levels

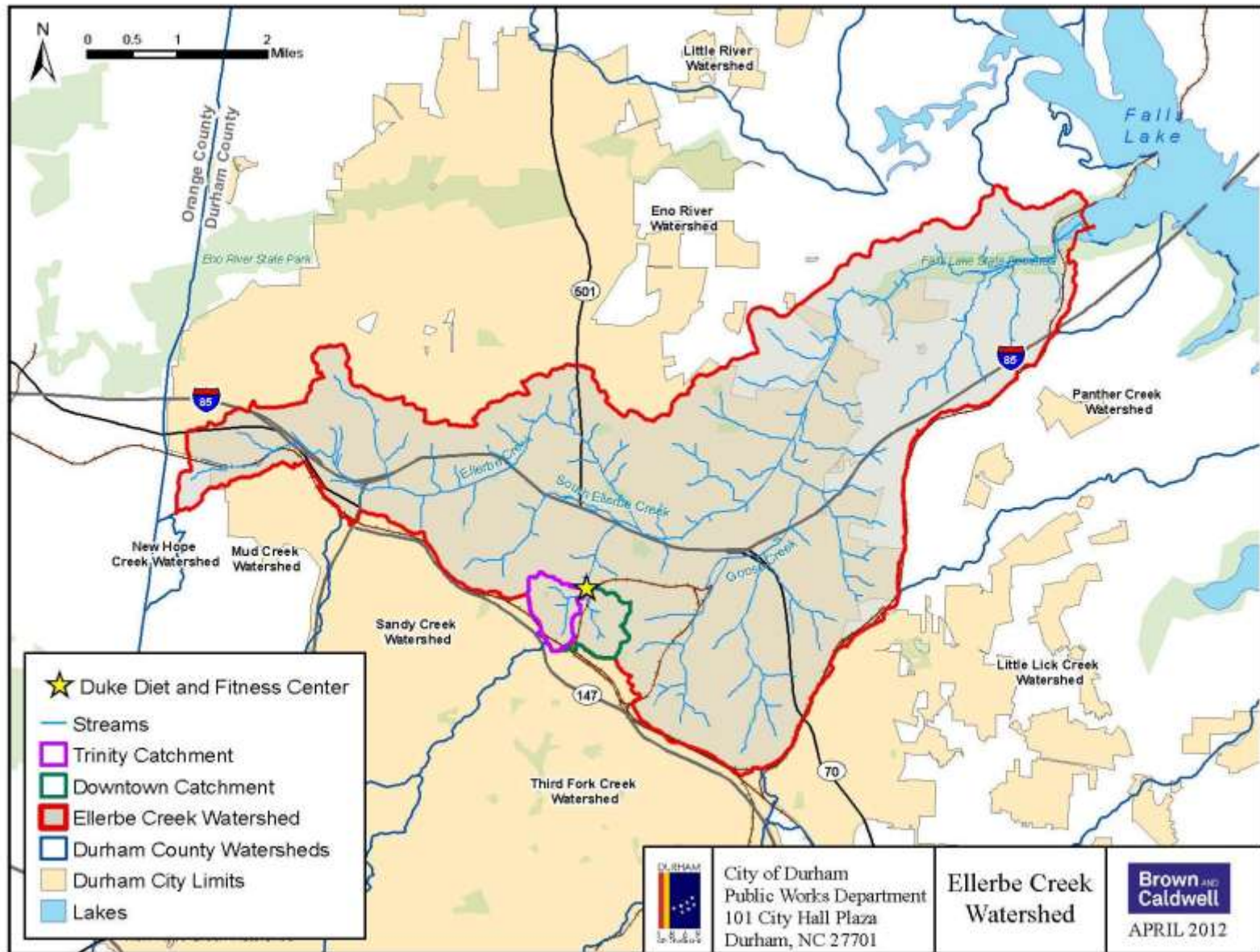




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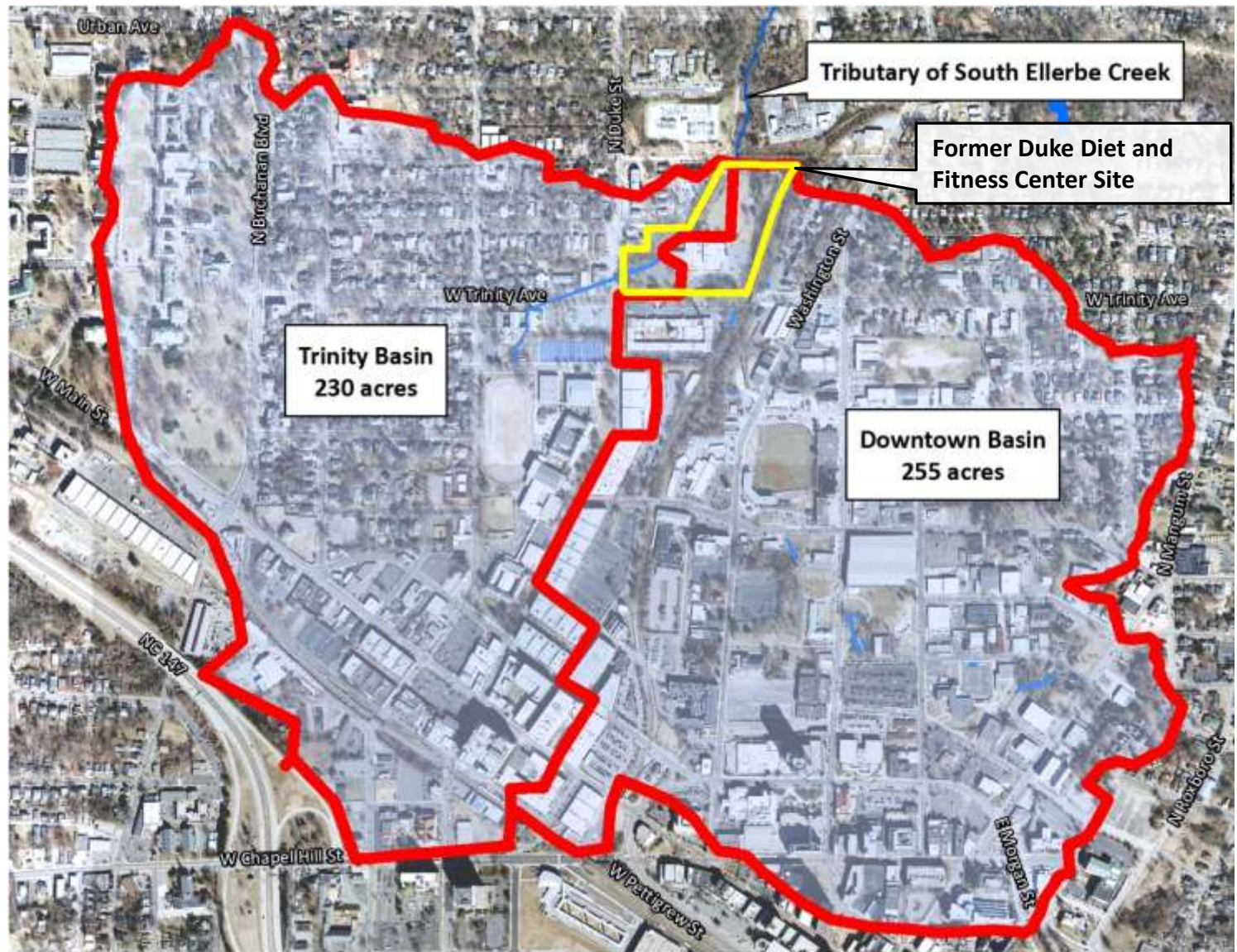




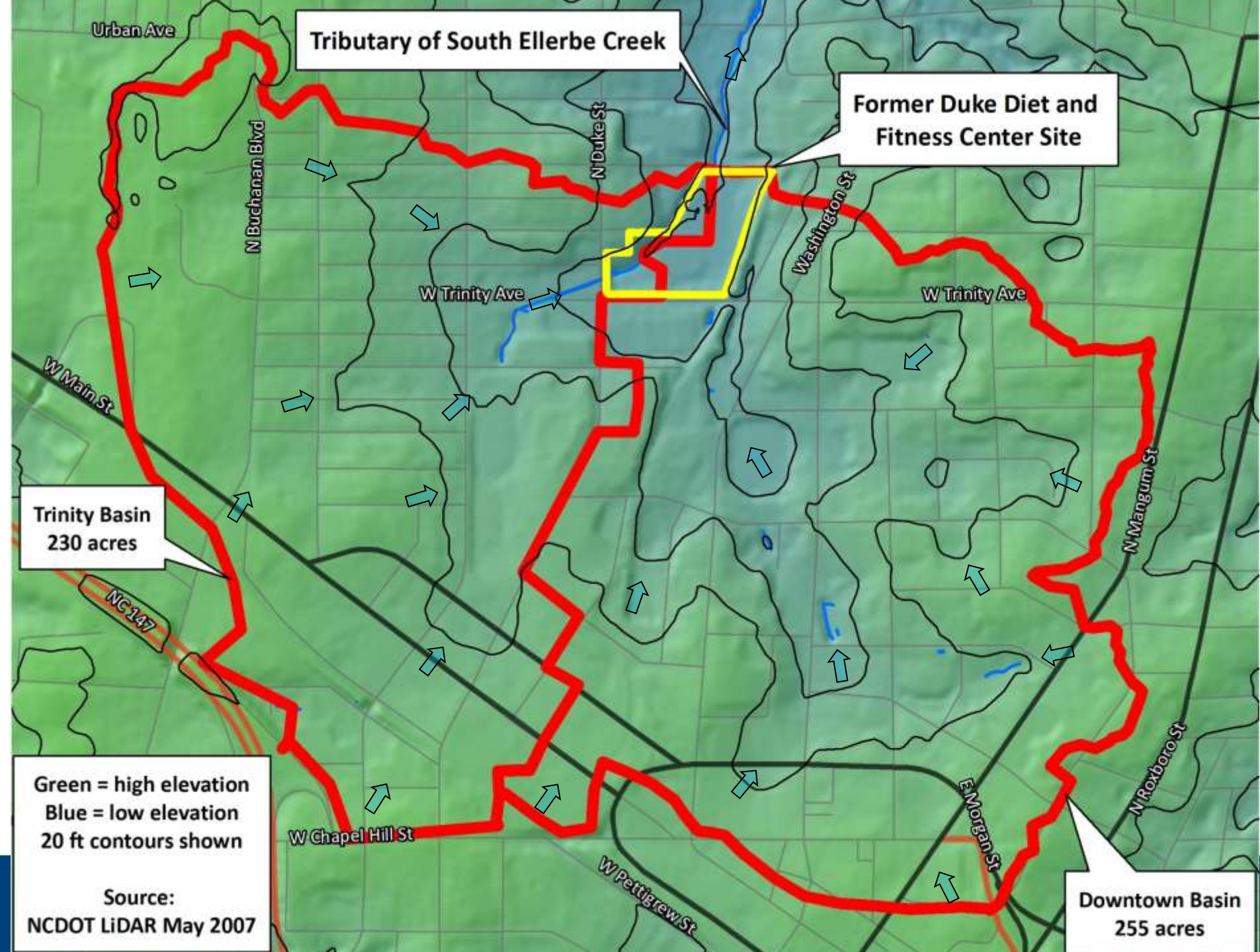
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485 acres could be treated

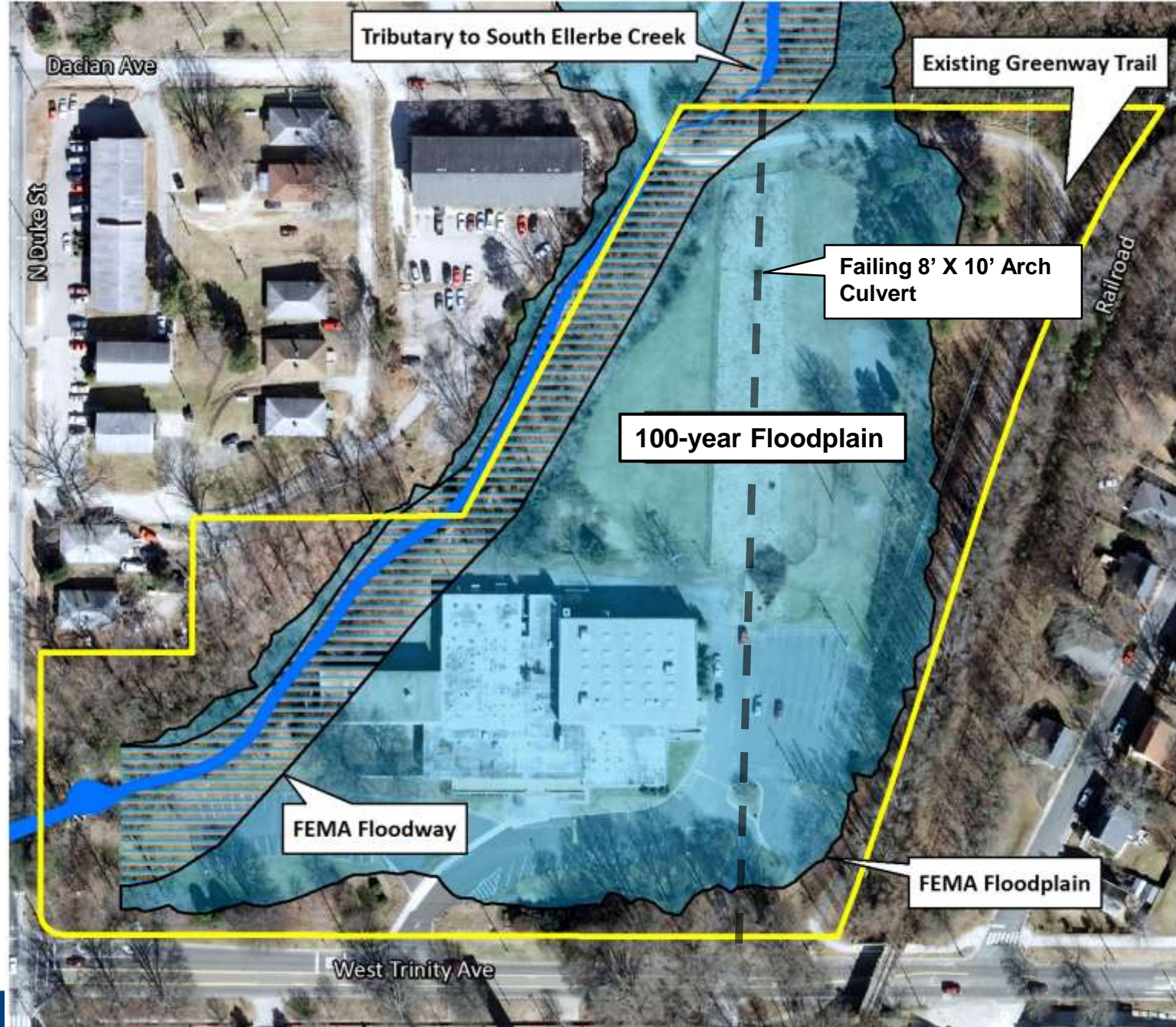


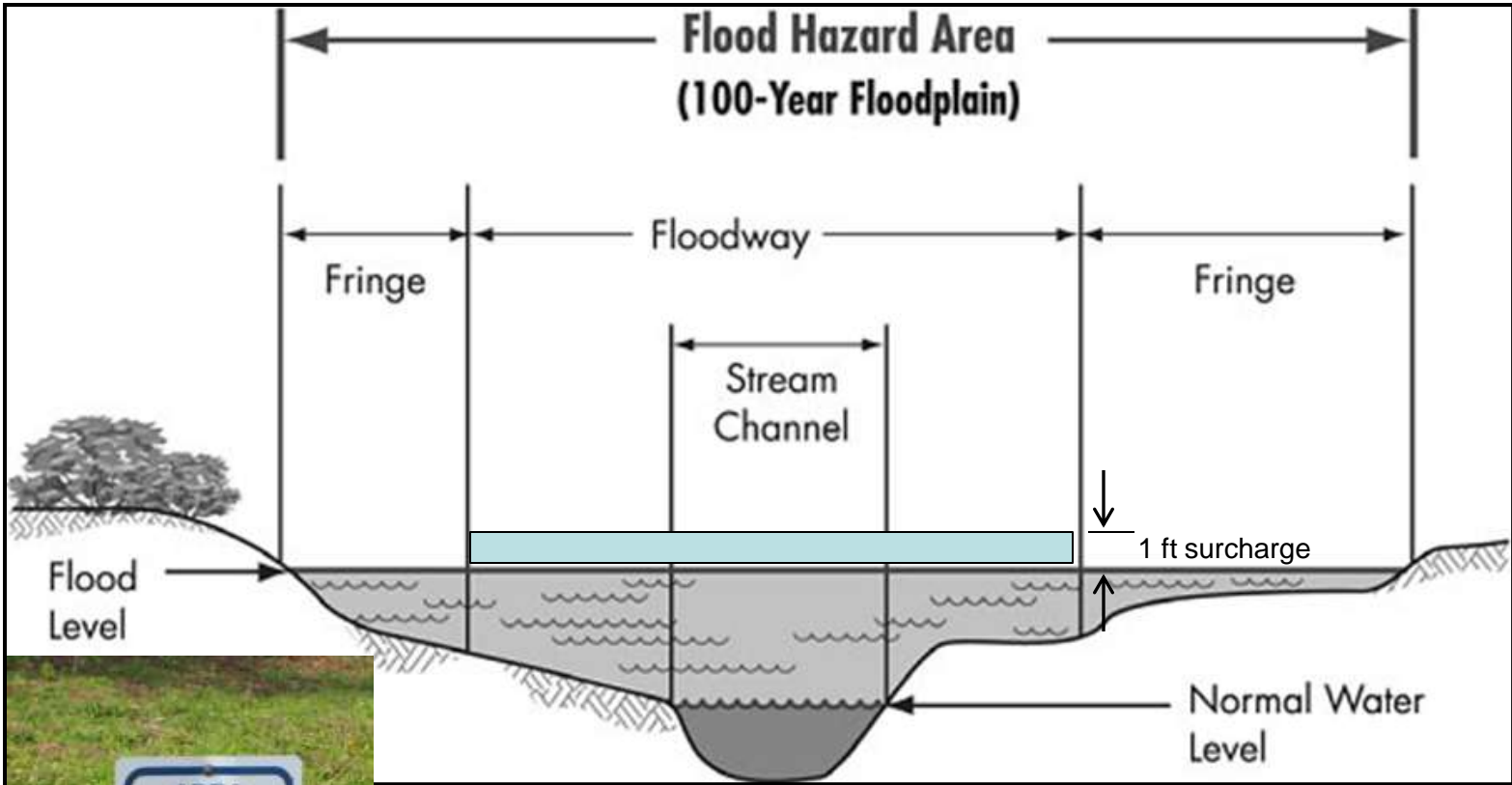


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Potential Amenities



Examples of Existing Smaller Constructed Wetlands in Durham



Duke Smith Warehouse
Wetland
114 South Buchanan Blvd.

Note that Existing Wetlands are on Private Property

A photograph of a constructed wetland area. The foreground is filled with dense, green and yellowish vegetation, including tall grasses and flowering plants. In the middle ground, there is a small, shallow pond or water feature surrounded by more greenery. In the background, a residential house with light-colored siding and several windows is visible, partially obscured by trees and shrubs. The overall scene is a lush, green landscape with a mix of natural and constructed elements.

Examples of Existing Smaller Constructed Wetlands in Durham

South Point Terrace Wetland 2
Morrell Lane & Leonardo Dr.
(Off Renaissance Pkwy near NC 751)

08/08/2011

Note that Existing Wetlands are on Private Property

1 Project Site

South Ellerbe Constructed Wetland

Costs ~\$8 million

EQUIVALENT TREATMENT DEVICES

Wet Ponds

36 Project Sites



Costs ~\$18 million

Constructed Wetlands

17 Project Sites



Costs ~\$18 million

Bioretention Sites

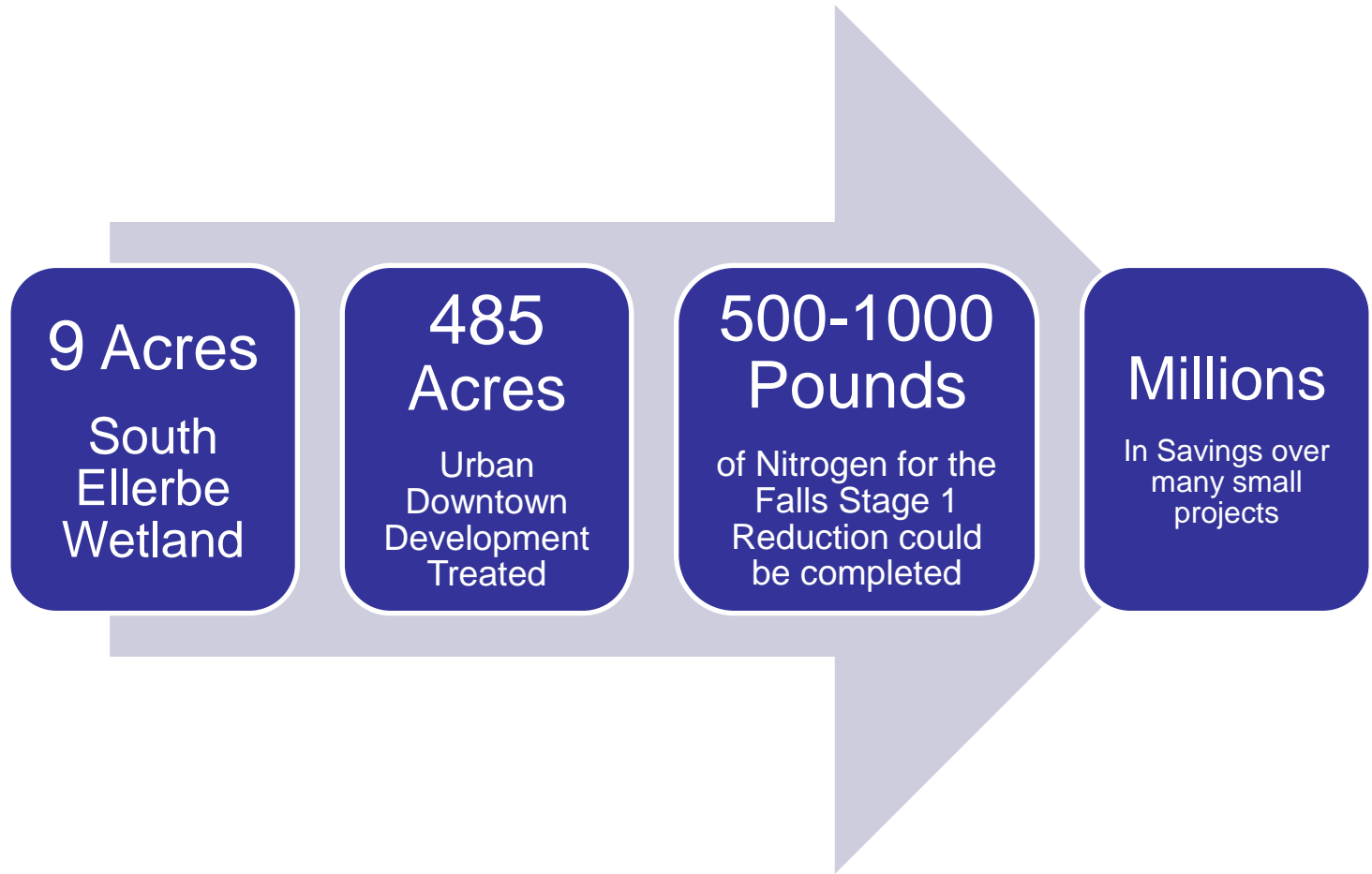
500 Project Sites



Costs ~\$30 million



SAVE MONEY on FALLS



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Additional Tools



Cistern



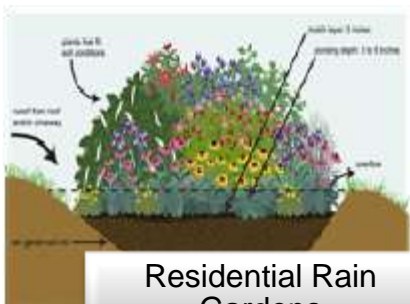
Permeable Pavement



Green Roof



Stream Restoration



Residential Rain Gardens



Floating Wetlands



Tree Box Filters



Preservation and Maintenance Practices



Atmospheric Deposition of Nitrogen



Algae Turf Scrubber



Rain Catcher's Grant



EPA Green
Infrastructure Grant



Process – What's next?

**Late 2011 to
Early 2012**

Feasibility
Study and
Environmental
Assessment

May 2012

Presentation
to City Council

Summer 2012

Public Input
Meetings

**End of
Summer 2012**

Bring Public
Input back to
City Manager

Meetings:

July 12, 2012 City Hall Council Chamber at 6:30pm

August 7, 2012 North Regional Library 7pm

www.durhamnc.gov/stormwater

<http://www.facebook.com/durhamncstormwater>



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